IN THE CLAIMS:

1. An improved filter comprising a downflow filter having crumb rubber particles made from tires as a filter media, said downflow filter having a top and a bottom, wherein a flow to be filtered enters said top of said downflow filter and exits said bottom of said downflow filter, and wherein said crumb rubber particles are compressible and porosity between said crumb rubber particles decrease through said down flow filter from said top to said bottom of said downflow filter due to pressure on each of said crumb rubber particles.

15. A method of filtering a liquid comprising passing the liquid into a top of a downflow filter such that the liquid passes through a media of crumb rubber particles made from tires and out a bottom of the downflow filter, said downflow filter having a top and a bottom, wherein a flow to be filtered enters said top of said downflow filter and exits said bottom of said downflow filter, and wherein said crumb rubber particles are compressible and porosity between said crumb rubber particles decrease through said down flow filter from said top to said bottom of said downflow filter due to pressure on each of said crumb rubber particles.

REMARKS

Attached is a one page clean copy of the amended claims.

Claims 1-20 stand rejected under 35 USC § 112, first paragraph, for the reasons cited by the Examiner.

Claims 1 and 15 have been amended to overcome the 35 USC § 112 rejections of Claims 1-20.

Claims 1, 2, 5, 15 and 20 stand rejected under 35 USC § 102(e), as being anticipated by U. S. Patent No. 6,267,882 to Houck et al. (the "Houck patent") for the reasons cited by the Examiner.

Amended claims 1 and 15 claim the use of crumb rubber made from tires.

The Houck patent discloses the use of tire chip. Tire chip is different from crumb rubber. Different processes are needed to manufacture tire chips and crumb rubber. A following statement is listed in *Scrap Tire News Online.* " To produce crumb rubber, it is usually necessary to further reduce the size of the tire shred or chip. This is accomplished by grinding techniques generally categorized as ambient or cryogenic." Attached is the article. The size of the tire chips is 2 inches. Crumb rubber as described in the application of the present invention has a size range of 9-16 mesh (1.2 to 2.0 mm) which is approximately 18 to 32 times smaller. So, it is not inherent that the rubber chips and crumb rubber would have the same properties. Especially, the stacking properties in any filter. Nowhere is it taught or suggested in the Houck patent to use crumb rubber. Therefore, claims 1 and 15 are not anticipated by the Houck patent and are patentable. It also follows that since claims 1 and 15 are patentable, that claims 2-14 and 16-20 which depend from either claims 1 or 15 are patentable.

Claims 2, 5 and 20 claim a downflow filter.

The Houck patent discloses a drainage or trickling system use in septic tank drain fields. This type of filter disclosed in the Houck patent is not a gravity fed downflow filter, whereby the material to be filter flows in at the top and out the bottom of the filter. Nowhere is it taught or suggested in the Houck patent to use downflow filter. Therefore, claims 2, 5 and 20 are not anticipated by the Houck patent and are patentable.

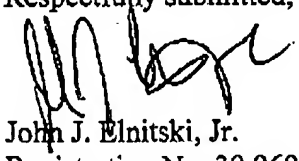
Claims 3, 4, 6, and 16-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Houck patent for the reasons cited by the Examiner. Applicant believes the rejections of these claims has been overcome by the removal of the Houck patent as a 35 USC § 102(e) reference. Furthermore, it has be pointed out that the properties of the rubber chips and crumb rubber are different and would make a difference in a downflow filter. It has also been pointed out that the filters in the Houck patent is different than the filter in the present application and

would require different properties for filtering media. Therefore, claims 3, 4, 6, and 16-18 are patentable in view of the Houck patent.

In view of the aforementioned remarks and amendments, it is believed that claims 1-20 are in condition for allowance and allowance of these claims is respectfully requested.

Please change the correspondence address to the one shown below.

Respectfully submitted,



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#1

RECOVERY TECHNOLOGIES

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To produce crumb rubber, it is usually necessary to further reduce the size of the tire shred or chip. This is accomplished by grinding techniques generally categorized as ambient or cryogenic.

Ambient Process

Ambient grinding can be accomplished in two ways: granulation and crackermills. Ambient describes the temperature of the rubber or tire as it is being size reduced. Typically, the material enters the crackermill or granulator at "ambient" or room temperature. The temperature of the rubber will rise significantly during the process due to the friction generated as the material is being "torn apart." Granulators size reduce the rubber by means of a cutting and shearing action. Product size is controlled by a screen within the machine. Screens can be changed to vary end product size.

Rubber particles produced in the granulation process generally have a cut surface shape, rough in texture, with similar dimensions on the cut edges. Uses for the crumb rubber or granulate produced in this process are covered in the products and applications section of the crumb rubber area.

Crackermills - primary, secondary or finishing mills - are all very similar and operate on basically the same principle: they use two large rotating rollers with serrations cut in one or both of them. The roll configurations are what make them different. These rollers operate face-to-face in close tolerance at different speeds. Product size is controlled by the clearance between the rollers. Crackermills are low speed machines and the rubber is usually passed through 2-3 mills to achieve various particle size reductions and further liberate the steel and fiber components. The crumb rubber particles produced by the crackermill are typically long and narrow in shape and have a high surface area.

Crumb or ground rubber produced in this process is used in the manufacture of numerous rubber products. These are discussed in the products and applications section.

see typical ambient grinding process

Cryogenic Process

Cryogenic processing refers to the use of liquid nitrogen or other materials/methods to freeze tire chips or rubber particles prior to size reduction. Most rubber becomes embrittled or "glass-like" at temperatures below -80°F. The use of cryogenic temperatures can be applied at any stage of size reduction of scrap tires. Typically, the size of the feed material is a nominal 2 inch chip or smaller. The material is cooled in a tunnel style chamber or immersed in a "bath" of liquid nitrogen to reduce the temperature of the rubber or tire chip. The cooled rubber is ground in an impact type reduction unit, usually a hammermill. This process reduces the rubber to particles ranging from 1/4 inch minus to 30 mesh.

For scrap tire derived rubber, the steel is separated out of the product by the use of magnets. The fiber is removed by aspiration and screening. The resulting material appears shiny, has clean, fractured surfaces and low steel and fiber content due to the clean breaks between the fiber, steel, and rubber.

Other Processes

In addition to conventional ambient grinding techniques and the cryogenic process, there are several proprietary wet-grinding processes in use today in the U.S. for producing fine and super-fine grades of crumb rubber.

Production of finer crumb rubber (40-60 mesh) and veryfine (60- mesh) requires a secondary high intensity grinding stage.

Micromilling, also called wet-grinding, is a patented grinding process in which tiny rubber particles are further size reduced by grinding in a liquid medium, usually water. Grinding is performed between two closely spaced grinding wheels.

Fine mesh crumb or ground rubber can be used in asphalt rubber, roofing product, coating and sealant products, as an ingredient in numerous automotive products including new tires.

see typical cryogenic grinding system

top of page | back to crumb rubber main page

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